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10/667,465	09/23/2003	Kazuhiro Mochinaga	2003_1343A	9043

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EXAMINER	
SAINT CYR, LEONARD	

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/667,465	Applicant(s) MOCHINAGA ET AL.	
	Examiner LEONARD SAINT CYR	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-13,31 -42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-13,31 - 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 05/28/08 have been fully considered but they are not persuasive.

Applicant argues that neither Pitman nor Ellis nor jiang teach or suggest calculating peak values of spectra of the audio signal corresponding to values at respective peaks of the band spectra from the band spectra of the audio signal, and obtaining, as the prescribed feature quantities, values of difference between peak values of frequency bands, each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra (Amendment, pages 13, and 14).

The examiner disagrees, Ellis et al., teach "utilizing fast Fourier transform process to generate audio frame signatures. Since matches can occur on several consecutive frames, each match (audio and video) has a peak width associated therewith. The number of such consecutively detected matches is referred to as the peak width; examines the run structure in the segment signature and generates an anticipated peak with value therefrom" (col.19, lines 25 – 28; col.31, lines 23 – 25; col.45, lines 25 – 30). Generating a peak width value from different audio frames signatures implies calculating peak values of spectra of the audio signal corresponding to values at respective peaks of the band spectra from the band spectra of the audio signal, and obtaining, as the prescribed feature quantities, values of difference between

peak values of frequency bands, each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra, since the consecutive frames contain a plurality of peaks, and the peak width is associated with the generated audio frame signatures.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 6 – 13, 31 - 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitman et al., (US PAP 2002/0143530) in view Ellis et al., (US Patent 5,504,518), and further in view jiang et al., (US Patent 6,901,362).

As per claim 6, Pitman et al., a feature quantity extracting apparatus comprising: a frequency transforming section for performing a frequency transform on a signal portion corresponding to a prescribed time length, which is contained in an inputted audio signal, to derive a frequency spectrum from the signal portion ("the audio signal is sampled and a frequency transform is performed on a succession of set of samples"; Abstract, lines 1 –3; paragraph 30, lines 5 - 7);

a band extracting section for extracting a plurality of frequency bands from the frequency spectrum derived by the frequency transforming section and for outputting band spectra which are respective frequency spectra of the extracted frequency bands ("frequency bands"; Abstract, lines 5, and 6; paragraph 32, line 11); and

a feature quantity calculating section for calculating respective prescribed feature quantities of the band spectra, the feature quantity calculating section obtaining the calculated prescribed feature quantities as feature quantities of the audio signal (“extract features from unknown audio content”; paragraph 33; paragraph 54).

However, Pitman et al., do not specifically teach that the feature quantity calculating peak values of spectra of the audio signal corresponding to values at respective peaks of the band spectra from the band spectra of the audio signal, and obtaining, as the prescribed feature quantities, values of difference between peak values of frequency bands, each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra.

Ellis et al., teach utilizing fast Fourier transform process to generate audio frame signatures. Since matches can occur on several consecutive frames, each match (audio and video) has a peak width associated therewith. The number of such consecutively detected matches is referred to as the peak width; examines the run structure in the segment signature and generates an anticipated peak with value therefrom” (col.19, lines 25 – 28; col.31, lines 23 – 25; col.45, lines 25 – 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate a peak value among consecutive frames as taught by Ellis et al., in Pitman et al., because that would help better identify the audio content with high accuracy (col.4, lines 5 – 7).

However, Pitman et al., in view of Ellis et al., do not specifically teach each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra.

Jiang et al., teach that the maximum local peak of the correlation function for each band is then located in a conventional manner (col.11, lines 10 – 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the larger of the maximum local peak as taught by Jiang et al., in Pitman et al., in view of Ellis et al., because that would provide improved segmentation and classification of audio signals (col.1, lines 41 – 43).

As per claim 7, Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose the feature quantity calculating section uses binary values to represent the values of difference between peak values of frequency bands, the binary values indicating a sign of a corresponding one of the values of difference (Ellis et al.; “binary value”; col.15, lines 37 – 40).

As per claim 8, Pitman et al., a feature quantity extracting apparatus comprising: a frequency transforming section for performing a frequency transform on a signal portion corresponding to a prescribed time length, which is contained in an inputted audio signal, to derive a frequency spectrum from the signal portion (“the audio signal is sampled and a frequency transform is performed on a succession of set of samples”; Abstract, lines 1 –3; paragraph 30, lines 5 - 7);

a band extracting section for extracting a plurality of frequency bands from the frequency spectrum derived by the frequency transforming section and for outputting band spectra which are respective frequency spectra of the extracted frequency bands ("frequency bands"; Abstract, lines 5, and 6; paragraph 32, line 11); and

a feature quantity calculating section for calculating respective prescribed feature quantities of the band spectra, the feature quantity calculating section obtaining the calculated prescribed feature quantities as feature quantities of the audio signal ("extract features from unknown audio content"; paragraph 33; paragraph 54).

However, Pitman et al., do not specifically teach that the feature quantity calculating peak values of spectra of the audio signal corresponding to values at respective peaks of the band spectra from the band spectra of the audio signal, and obtaining, as the prescribed feature quantities, values of difference between peak values of frequency bands, each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra.

Ellis et al., teach utilizing fast Fourier transform process to generate audio frame signatures. Since matches can occur on several consecutive frames, each match (audio and video) has a peak width associated therewith. The number of such consecutively detected matches is referred to as the peak width; examines the run structure in the segment signature and generates an anticipated peak with value therefrom" (col.19, lines 25 – 28; col.31, lines 23 – 25; col.45, lines 25 – 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate a peak value among consecutive frames as

taught by Ellis et al., in Pitman et al., because that would help better identify the audio content with high accuracy (col.4, lines 5 – 7).

However, Pitman et al., in view of Ellis et al., do not specifically teach each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra.

Jiang et al., teach that the maximum local peak of the correlation function for each band is then located in a conventional manner (col.11, lines 10 – 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the larger of the maximum local peak as taught by Jiang et al., in Pitman et al., in view of Ellis et al., because that would provide improved segmentation and classification of audio signals (col.1, lines 41 – 43).

As per claim 9, Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose that the feature quantity calculating section calculates, as the prescribed feature quantities, values of difference between peak frequencies of frequency bands (Ellis et al.,“detect multiple matches on a given key signature for consecutive frames, and generate an anticipated peak value”; col.45, lines 25 – 31).

As per claim 10, Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose that the feature quantity calculating section represents the prescribed feature quantities using binary values indicating whether a corresponding one of the values of difference between peak frequencies of frequency bands is greater

than a prescribed value (Ellis et al.; “one binary value for positive elements”; col.15, lines 37 – 40).

As per claim 11, Pitman et al., a feature quantity extracting apparatus comprising: a frequency transforming section for performing a frequency transform on a signal portion corresponding to a prescribed time length, which is contained in an inputted audio signal, to derive a frequency spectrum from the signal portion (“the audio signal is sampled and a frequency transform is performed on a succession of set of samples”; Abstract, lines 1 –3; paragraph 30, lines 5 - 7);

a band extracting section for extracting a plurality of frequency bands from the frequency spectrum derived by the frequency transforming section and for outputting band spectra which are respective frequency spectra of the extracted frequency bands (“frequency bands”; Abstract, lines 5, and 6; paragraph 32, line 11); and

a feature quantity calculating section for calculating respective prescribed feature quantities of the band spectra, the feature quantity calculating section obtaining the calculated prescribed feature quantities as feature quantities of the audio signal (“extract features from unknown audio content”; paragraph 33; paragraph 54).

the frequency transforming section extracts from the audio signal the signal portion corresponding to a prescribed time length at prescribed time intervals (“the audio signal is sampled and a frequency transform is performed on a succession of set of samples”; Abstract, lines 1 –3; paragraph 30, lines 5 - 7).

However, Pitman et al., do not specifically teach that the feature quantity calculating peak values of spectra of the audio signal corresponding to values at respective peaks of the band spectra from the band spectra of the audio signal, and obtaining, as the prescribed feature quantities, values of difference between peak values of frequency bands, each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra.

Ellis et al., teach utilizing fast Fourier transform process to generate audio frame signatures. Since matches can occur on several consecutive frames, each match (audio and video) has a peak width associated therewith. The number of such consecutively detected matches is referred to as the peak width; examines the run structure in the segment signature and generates an anticipated peak with value therefrom" (col.19, lines 25 – 28; col.31, lines 23 – 25; col.45, lines 25 – 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate a peak value among consecutive frames as taught by Ellis et al., in Pitman et al., because that would help better identify the audio content with high accuracy (col.4, lines 5 – 7).

However, Pitman et al., in view of Ellis et al., do not specifically teach each of the peak values being of a greatest spectrum strength among local maximums of each of the band spectra.

Jiang et al., teach that the maximum local peak of the correlation function for each band is then located in a conventional manner (col.11, lines 10 – 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the larger of the maximum local peak as taught by Jiang et al., in Pitman et al., in view of Ellis et al., because that would provide improved segmentation and classification of audio signals (col.1, lines 41 – 43).

As per claim 12, Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose that the peak frequency time variation calculating section obtains, as the prescribed feature quantities, binary values indicating a sign of a corresponding one of the time variation quantities of the peak frequencies (Ellis et al.; “binary value”; col.15, lines 37 – 40).

As per claim 13, Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose that the peak frequency time variation calculating section obtains, as the prescribed feature quantities, binary values indicating whether a corresponding one of the time variation quantities of the peak frequencies is greater than a prescribed value (Ellis et al.; “one binary value for positive elements”; col.15, lines 37 – 40).

As per claims 31 - 33, 35 –37, and 39 –41, Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose a recording medium, and reproduction medium; and a feature quantity storage section which stores at least a set of a feature quantity of an audio signal and control instruction information associated therewith, (Pittman et al.; paragraph 54; paragraph 25).

Pitman et al., in view of Ellis et al., and further in view of Jiang et al., do not specifically teach receiving television program data containing an audio signal and a video signal, and is capable of recording the television program data to a recording medium, wherein the feature quantity extracting apparatus obtains a feature quantity of the audio signal contained in the television program data, wherein the program recording apparatus further comprises: a recording control section for controlling recording of the television program data to the recording medium; the audio signal containing music played in a television program to be recorded, the control instruction information instructing the recording control section to perform or stop recording of the television program; a feature quantity comparison section for determining whether the audio signal contained in the television program data matches with the audio signal containing the music played in the television program based on both the feature quantity obtained by the feature quantity extracting apparatus and the feature quantity stored in the feature quantity storage section, and wherein when the feature quantity comparison section determines that the audio signal contained in the television program data matches with the audio signal containing the music played in the television program, the recording control section performs the control of performing or stopping recording of the television program data to the recording medium in accordance with an instruction indicated by control instruction information which is stored in the feature quantity storage section and associated with a feature quantity of the audio signal having been determined as matching with the audio signal containing the music played in the television program.

However, since Ellis et al., teach receiving television broadcast signals over a respective channel and demodulates the received signals to provide baseband video and audio signals. The video and audio signals are thereafter supplied to the segment recognition subsystem wherein frames signatures for each of the video and audio signals are generated which are thereafter compared to store key signatures to determine if a match exists (col.9, lines 55 – 62). The FIR module serve to improve signature stability by averaging the audio spectral data over a number of television frames, thus to enhance the likelihood of obtaining correct signatures matches (col.21, lines 64 – 67). One having ordinary skill in the art at the time the invention was made would have found it obvious to use extracting features to match audio and video in a television broadcast, because as taught that would help determine what programs, songs or other works have been broadcast (Ellis et al.; col.10, lines 1- 12).

As per claim 34, 38, and 42 Pitman et al., in view of Ellis et al., and further in view of Jiang et al., further disclose that the program reproduction control apparatus further comprises an editing section capable of editing the television program data recorded in the recording medium (Ellis et al.; ”updating a broadcast segment recognition database storing signatures”; col.5, lines 2, and 3).

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571) 272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
08/09/08
/Michael N. Opsasnick/
Primary Examiner, Art Unit 2626